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Disaster Preparedness, Emergency Response Planning and their Influence on Community Resilience During Calamities Among Selected Barangays In Valencia City

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ABSTRACT

Communities in disaster-prone areas require strong preparedness and response mechanisms to sustain resilience during calamities. This study assessed the levels of disaster preparedness, emergency response planning, and community resilience in Valencia City, Bukidnon, using a descriptive-correlational design with 381 respondents selected through stratified random sampling. Standardized instruments were used to measured preparedness, response systems, and resilience indicators. Data were analyzed using Mean, Standard Deviation, Pearson Product–Moment Correlation Coefficient and Multiple Regression. Findings revealed high level of Disaster Preparedness, emergency response plan and level of community resilience. This study examined the relationship between disaster preparedness, emergency response planning, and community resilience in Valencia City. Grounded in disaster risk reduction and resilience frameworks, the research aimed to determine the level of preparedness and response effectiveness, and to assess their influence on community resilience. A quantitative research design was employed using survey questionnaires administered to selected community respondents. Descriptive and inferential statistical analyses were utilized to evaluate the relationships among variables.

Findings revealed that the community demonstrates a high level of disaster preparedness, particularly in knowledge, awareness, and early warning systems, while resources, logistics, and training showed moderate strength. The emergency response plan was perceived as effective, with clear protocols, timely actions, and accessible relief and medical services, although inter-agency coordination requires improvement. Community resilience was likewise rated high, reflecting strong adaptive capacity, recovery mechanisms, and psychological stability. Statistical results confirmed that disaster preparedness and all dimensions of the emergency response plan significantly predict community resilience. The study concludes that strengthening resource allocation, inter-agency coordination, continuous training, and early warning dissemination will further enhance the community's long-term resilience and disaster management capacity. Response speed and efficiency emerged as the strongest predictors of community resilience, followed by early warning systems and knowledge and awareness. The study concludes that effective preparedness measures and rapid, coordinated emergency response substantially strengthen community resilience, underscoring the need for continuous training, enhanced logistics, and improved inter-agency collaboration to further fortify disaster-prone communities. Based on the findings, it is recommended that the Local Government Unit and the City Disaster Risk Reduction and Management Council intensify resource allocation, strengthen inter-agency coordination, enhance early warning dissemination systems, conduct regular community-based training and simulations, and expand psychosocial and resilience-building programs. Future studies may explore additional variables such as climate change adaptation strategies, technological innovations in disaster management, and comparative assessments between different community settings to further enrich disaster preparedness and resilience frameworks.

Keywords: Disaster Preparedness; Emergency Response Planning; Community Resilience; Disaster Risk Reduction Management; Adaptive Capacity; Collective Efficacy; Early Warning Systems; Inter-Agency Coordination; Community-Based Disaster Management; Calamity Response; Disaster Resilience; Valencia City Bukidnon.

1.0. Introduction

Natural disasters have become increasingly frequent and destructive in recent decades, largely due to the combined effects of climate change, environmental degradation, and rapid urbanization. Disasters from earthquakes and storms to floods and droughts kill approximately 40,000 to 50,000 people per year. (Ritchie et al.,2022). Worldwide, nations are experiencing stronger typhoons, prolonged droughts, rising sea levels, and more powerful earthquakes that pose significant risks to human life, infrastructure, and economic stability. According to global disaster monitoring agencies, the number of recorded disasters has more than doubled since the 1980s, with developing countries bearing the brunt of casualties and damages (Zin, 2023). These escalating trends highlight the urgent need for stronger disaster preparedness and risk reduction strategies to safeguard vulnerable populations (Patel, 2023). In the Philippines, the situation is particularly alarming given the country's geographical location in

the Pacific Ring of Fire and the typhoon belt. On average, around 20 tropical cyclones enter the Philippine Area of Responsibility (PAR) annually, with several classified as destructive super typhoons (Alcayna et al., 2022).

Earthquakes and volcanic eruptions also pose recurring threats, while floods and landslides often result from prolonged heavy rains. The devastation brought by disasters such as Typhoon Haiyan (Yolanda) in 2013, the Taal Volcano eruption in 2020, and recent super typhoons underscores the country's high exposure and vulnerability (Abon et al., 2023). These realities emphasize the pressing importance of strengthening disaster preparedness and emergency response mechanisms to build community resilience and reduce disaster-related losses (Philippine Institute for Development Studies, 2021). On September 17, 2025, a localized thunderstorm triggered severe flooding in Valencia City, Bukidnon, resulting in significant damage and loss of life. The floodwaters affected over 2,000 families, destroyed 83 houses, and caused damages exceeding ₱63 million. Tragically, four individuals lost their lives, including Larry Labay, 53; Jaya Viña; and King Winston Adran, 13, while four others remained missing as of September 23, 2025 (Philippine News Agency, 2025). Furthermore, an Urban Search and Rescue team was deployed to assist in search and retrieval operations (Luczon, 2025). These events underscore the critical need for comprehensive disaster preparedness and emergency response planning to mitigate the impact of such calamities and enhance community resilience. The recent flooding in Valencia City highlights the importance of integrating disaster risk reduction and climate change adaptation strategies at the local level. Understanding climate and disaster risks is essential for informing effective planning and decision-making, as emphasized in the Bukidnon Climate Risk Diagnostics report (Bukidnon Provincial Government, 2025).

Additionally, the Enhanced Local Climate Change Action Plan (LCCAP) aims to mainstream disaster risk reduction and climate change adaptation in local governance to build resilience against future hazards (Bukidnon Provincial Government, 2025). These initiatives align with national efforts to strengthen disaster resilience and emphasize the importance of localized, proactive planning in safeguarding communities from the adverse effects of climate-related disasters. Disaster preparedness refers to the proactive measures taken by individuals, households, and communities to minimize the impact of potential hazards (United Nations Office for Disaster Risk Reduction, 2024). It involves raising awareness about risks, conducting risk assessments, and ensuring that resources such as emergency kits, evacuation shelters, and communication systems are readily available.

Preparedness also encompasses capacity-building activities like first aid training, simulation exercises, and evacuation drills, which equip people with the skills necessary to respond effectively during emergencies (Hsu et al.,2023). Strengthening knowledge and readiness, communities can significantly reduce their vulnerabilities and limit the destructive impact of calamities (Western Fire Chiefs Association, 2025). Beyond its practical aspects, disaster preparedness fosters a culture of shared responsibility and resilience within communities. Early warning systems and continuous education initiatives encourage residents to take ownership of their safety and that of others (Cutter et al., 2023). When communities engage in collective preparedness, they are better positioned to make timely decisions, protect lives, and safeguard resources (Mulyani & Setiawan 2023). Analysis in Indonesian villages highlights how disaster preparedness strengthens community awareness, cooperation, and resilience by motivating joint ownership of safety and resource protection.

Thus, disaster preparedness is not merely about having tools or plans in place. it is also about building awareness, promoting cooperation, and instilling a proactive mindset that enhances a community's overall capacity to withstand disasters (UNDRR 2025). Emergency response planning is the organized framework that dictates how communities act when a disaster strikes (Mobosi, 2025) reviews and highlights emergency preparedness and disaster response plans, focusing on health and environmental risk mitigation. It involves establishing clear protocols and responsibilities, ensuring inter-agency coordination, and designing systems that allow for the rapid mobilization of resources. An effective emergency response plan provides step-by-step guidelines for evacuation, rescue, medical assistance, and relief distribution, minimizing confusion during critical moments (Pu et al. 2025). The speed and efficiency with which these measures are implemented often determine the extent of casualties and damage, making response planning an indispensable aspect of disaster management (Chen et al. 2021).

Moreover, effective response planning emphasizes collaboration among different stakeholders, including local government units (LGUs), non-governmental organizations (NGOs) (Satapathy & Walia 2024), first responders, and community volunteers. This collaboration ensures that no single institution bears the entire burden of disaster management. (Fatemi & Durugbo 2021) emphasize that access to immediate relief and medical services also plays a vital role in reducing human suffering and stabilizing affected populations. In this sense, emergency response planning is not just about technical protocols it is about creating a well-coordinated system where multiple actors work together to save lives and restore stability as quickly as possible (Arora & Ramachandran 2024). Community-based approaches to disaster risk reduction and management (DRRM) are vital because they empower people at the grassroots level, the ones most directly affected by calamities, to actively participate in preparing for, responding to, and recovering from disasters (Tahir, 2021). Unlike top-down strategies that rely heavily on government or external aid, community-based DRRM recognizes the local knowledge, skills, and resources that residents already possess (Izumi, 2021).

This approach enhances risk awareness, encourages proactive planning, and fosters a culture of preparedness where individuals and households take shared responsibility for reducing vulnerabilities (Shaw & Wang, 2024). When communities are directly involved, disaster plans and strategies become more practical, inclusive, and sustainable. Community resilience is the capacity of a community to adapt to, withstand, and recover from the adverse effects of calamities (Halkia et al., 2024). It reflects not only the community's physical ability to rebuild infrastructure and restore essential services but also its social and psychological strength in coping with disruption. Resilient communities demonstrate adaptive capacity, enabling them to adjust strategies and behaviors in response to evolving risks (Aldrich & Meyer, 2024). They are characterized by their ability to bounce back quickly, maintain stability, and even emerge stronger after a disaster. Importantly, resilience is rooted in collective efficacy the sense of trust, cooperation, and solidarity among community members (Tasantab et al., 2023). A resilient community is one where individuals support one another, share resources, and work together to recover from crises (Drury et al., 2023).

Moreover, community-based DRRM builds stronger resilience by promoting unity, trust, and cooperation among members. Localized participation ensures that response measures are culturally appropriate and context-specific,

addressing the unique risks and needs of each community (Philippine Disaster Resilience Foundation, 2022). It also strengthens partnerships between communities, local government units (LGUs), and organizations, ensuring faster coordination during emergencies (Public Media Council, 2022). Ultimately, empowering communities through active engagement in DRRM not only reduces disaster impacts but also accelerates recovery, creating safer and more adaptive societies capable of withstanding future calamities (UNDP Philippines, 2023). Given the increasing frequency and intensity of calamities worldwide and the critical role of community-based disaster risk reduction and management, a study focuses on how disaster preparedness and emergency response planning contribute to the strengthening of community resilience (Cutter et al. 2023).

In examining the interplay of these factors, another seeks to highlight the ways in which communities can not only survive disasters but also recover more effectively and adapt to future risks. Many existing studies in disaster risk reduction and management have concentrated either on preparedness or on response as separate elements of disaster management (Arbon et al., 2021). While these studies provide valuable insights, there remains limited research that examines the combined impact of disaster preparedness and emergency response planning on community resilience (United Nation Disaster Risk Reduction (UNDRR) Global Assessment Report 2025). This knowledge gap is critical because community resilience is not developed through isolated or fragmented disaster management efforts, but through the strategic integration of proactive preparedness and effective emergency response. Preparedness initiatives such as risk awareness, early warning systems, training, and resource planning establish the foundation for reducing vulnerability before disasters occur, while emergency response mechanisms determine how efficiently a community can act during and immediately after a calamity. When these components operate in isolation, their potential to reinforce one another is diminished, resulting in delayed actions, inefficient resource utilization, and weakened recovery outcomes.

This study sought to determine the relationship between disaster preparedness, emergency response planning, and community resilience in Valencia City, Bukidnon. Specifically, it addressed key preparedness variables such as knowledge and awareness, availability of resources, training and drills, and early warning systems, as well as emergency response planning variables including clarity of protocols, inter-agency coordination, efficiency of response, and access to relief and medical services. By examining how these variables influenced the level of community resilience particularly in terms of the community's capacity to adapt, withstand, and recover from disasters the study provided empirical evidence that responded directly to the problems identified in this research and strengthened the understanding of how preparedness and response mechanisms interacted within the disaster risk reduction and management (DRRM) framework.

The findings of this study benefited the Local Government Unit (LGU) of Valencia City, barangay officials, local disaster risk reduction and management (DRRM) councils, disaster response agencies, and community residents. Local Government Unit (LGU) and disaster risk reduction and management (DRRM) planners were able to utilize the results as a basis for enhancing policies, programs, and resource allocation related to disaster preparedness and emergency response. Barangay officials and responders were guided by the findings in improving training initiatives, coordination strategies, and the implementation of response protocols at the community level.

Moreover, community members benefited through improved safety, reduced disaster-related losses, and strengthened resilience during calamities. Overall, this study supported evidence-based decision-making aligned with national disaster risk reduction and management (DRRM) priorities and the Sendai Framework for Disaster Risk Reduction, contributing to the development of a safer, more resilient, and disaster-prepared Valencia City.

1.1. Study Objectives

This study aimed to determine the community resilience through disaster preparedness and emergency response planning during calamities. Specifically, it was answered the following questions:

1) What is the level of disaster preparedness in terms of knowledge and awareness, resources and logistics, training and drills, and early warning systems?
2) What is the level of emergency response plan in terms of protocol clarity, inter-agency coordination, response speed, efficiency, and relief and medical access?
3) What is the level of community resilience during calamities in terms of adaptive capacity, recovery and continuity, collective efficacy, psychological well-being, and reduced vulnerability?
4) Is there a significant relationship between disaster preparedness and community resilience?
5) Is there a significant relationship between the emergency response plan and community resilience?
6) What is the predictor of community resilience?

2.0. Literature Review

Disaster preparedness and emergency response planning have become important components in strengthening the resilience of communities against disasters and emergencies. The idea of resilience was strongly influenced by Crawford Stanley Holling Community Resilience Theory, which explains how communities and systems are capable of coping with disruptions, recovering from difficult situations, and adapting to future challenges (Holling, 1973). In the field of disaster management, resilience does not simply refer to returning to normal conditions after a disaster occurs. It also involves the ability of communities to learn from past experiences, reorganize available resources, and improve preparedness and response strategies over time. Earlier studies highlighted that social unity, institutional assistance, effective communication systems, and active community involvement are important factors that strengthen preparedness and long-term resilience (Norris et al., 2008). In the same way, more recent studies found that infrastructure improvement, collective participation, and effective governance greatly contribute to stronger disaster resilience and faster recovery processes (Clark et al., 2023; Chen et al., 2024). Other recent investigations further explained that digital risk communication, community-based adaptation initiatives, and integrated disaster governance systems help improve preparedness and reinforce resilience among vulnerable groups (Santos & Reyes, 2026; Ibrahim et al., 2026).

These findings indicate that organized preparedness measures and coordinated emergency response systems are essential in creating safer and more disaster-resilient communities (Wang et al., 2024; Liu & Zhang, 2024). The United Nations Office for Disaster Risk Reduction Sendai Framework for Disaster Risk Reduction also

emphasizes the significance of preparedness, awareness of risks, and collaborative governance in minimizing the effects of disasters (United Nations, 2015). According to the framework, communities and institutions should strengthen preparedness efforts through proper risk assessment, emergency planning, continuous training, and coordinated response mechanisms. Studies conducted in several countries showed that localized disaster risk reduction programs become more effective when there is strong institutional coordination and efficient communication systems that encourage community participation (Hussain et al., 2023).

Furthermore, preparedness activities such as disaster drills, public awareness programs, and cooperation among agencies were proven to improve operational readiness and lessen vulnerability during emergencies (Coppola, 2015; Alam & Ray-Bennett, 2022). Recent studies published in 2026 also revealed that climate-adaptive disaster planning, real-time emergency coordination platforms, and inclusive governance strategies significantly enhance disaster readiness and response efficiency within communities (Garcia et al., 2026; Moreno & Silva, 2026). Researchers additionally pointed out that disaster education and clearly structured emergency protocols help individuals better understand disaster risks and encourage proactive preparedness behavior within communities (Patel & Freeman, 2023; World Health Organization, 2023).Another theory relevant to this study is Ronald W. Rogers Protection Motivation Theory, which explains how individuals are motivated to take protective actions once they recognize threats and believe they are capable of responding effectively (Rogers, 1975).

This theory suggests that people are more willing to participate in preparedness activities when they understand the seriousness of disasters and have confidence in their ability to respond properly. Previous studies confirmed that disaster drills, simulations, and preparedness training enhance self-confidence, improve response capability, and increase willingness to act during emergencies (Adhikari et al., 2021). Similarly, studies found that perceptions regarding the severity of risks and the effectiveness of response measures positively influence disaster preparedness behavior among people living in hazard-prone communities (Faryabi et al., 2023; Greer et al., 2022). More recent findings also emphasized that regular training programs and coordinated response exercises improve communication, strengthen response efficiency, and reduce confusion during disasters (Nguyen et al., 2024; Qiu et al., 2023).

In addition, newly published studies revealed that technology-supported disaster simulations and community-centered preparedness training greatly improve behavioral motivation, coordination, and public confidence during emergency situations (Delos Santos & Cruz, 2026). Community resilience is also closely connected to adaptive capacity, continuity of recovery, collective cooperation, psychological well-being, and reduced vulnerability. Several studies explained that resilient communities are characterized by strong social support systems, sufficient access to essential resources, and effective recovery mechanisms that enable individuals and institutions to recover more efficiently after disasters (Grab & Adom, 2023). Likewise, adaptive capacity and institutional readiness were identified as important factors influencing long-term recovery and sustainability in areas affected by disasters (Khadka, 2024). Other studies also showed that social trust, collective participation, and psychological support greatly contribute to strengthening resilience and improving the well-being of affected populations after calamities (Cosentino et al., 2024; Mao et al., 2025). Recent literature

published in 2026 further highlighted that mental health integration, sustainable recovery planning, and community-led rehabilitation initiatives play significant roles in promoting long-term resilience and community adaptation after disasters (Villanueva et al., 2026). Moreover, inclusive disaster risk reduction policies and climate adaptation measures were identified as important strategies in reducing vulnerability and promoting sustainable resilience within communities (Wisner et al., 2023; FAO, 2024; UNDRR, 2025; D'Amico et al., 2025). Overall, the reviewed literature consistently shows that effective disaster preparedness and coordinated emergency response planning are fundamental in developing adaptive, resilient, and disaster-ready communities.

3.0. Method

This study utilized a descriptive-correlational research design to examine the relationship between disaster preparedness, emergency response planning, and community resilience in selected barangays of Valencia City, Bukidnon. The design was considered appropriate because it allowed the researcher to describe the current conditions of disaster preparedness and response practices while also determining the degree of relationship among the identified variables without manipulating them (Creswell & Creswell, 2021; Williams, 2021). The study was conducted in Valencia City, a highly agricultural and disaster-prone area in Northern Mindanao that is vulnerable to flooding, landslides, and earthquakes due to its geographical location and river systems. Four selected barangays served as the study sites to provide a broader understanding of disaster preparedness conditions in both urban and rural communities. A total of 381 respondents were selected through stratified random sampling based on the population size of each barangay. Participants were required to be bona fide residents for at least five years, 18 years old and above, household heads or primary decision-makers in disaster-related concerns, and willing to voluntarily participate in the study.

Data gathering commenced after securing approval from the Graduate School and permission from barangay officials and relevant authorities. Respondents were informed about the objectives, procedures, and voluntary nature of the study before informed consent was obtained. Survey questionnaires were administered according to the respondents' preferred schedule, and all collected data were reviewed, secured, and treated with strict confidentiality in compliance with the provisions of Republic Act No. 10173 or the Data Privacy Act of 2012. The study also adhered to the ethical standards established by the Misamis University Research Ethics Committee (MUREC). For data analysis, mean and standard deviation were used to determine the levels of disaster preparedness, emergency response planning, and community resilience. Meanwhile, the Pearson Product–Moment Correlation Coefficient was utilized to examine the relationships among variables, while Multiple Regression Analysis was employed to identify the significant predictors of community resilience based on disaster preparedness and emergency response planning.

4.0. Results and Discussion

The results of the study on community resilience, emergency response planning, and disaster preparedness among particular barangays in Valencia City, Bukidnon, are shown in this section. The conversation centers on the respondents' perceptions of their communities' present state of preparedness and emergency response systems, as well as how these elements affect the general resilience of communities during disasters. The findings are arranged

in accordance with the study's objectives and are interpreted using statistical analysis, pertinent literature, and the theoretical underpinnings of Protection Motivation Theory, the Sendai Framework for Disaster Risk Reduction, and Community Resilience Theory. The results offer insights into the advantages and shortcomings of current disaster management procedures, especially with regard to awareness, based on the experiences and opinions of the respondents. The discussion further highlights the significant relationships between disaster preparedness, emergency response planning, and community resilience, emphasizing how preparedness initiatives and effective response systems contribute to a community's ability to adapt, recover, and remain functional during disaster situations. The findings also identify the strongest predictors of resilience, demonstrating the importance of timely response, early warning systems, informed communities, and accessible support services in minimizing disaster impacts. By integrating statistical evidence with current scholarly literature, this section explains how disaster risk reduction efforts at the local level can strengthen long-term resilience and support sustainable community safety and recovery.

4.1. Level of Disaster Preparedness

This study examined the level of disaster preparedness using Community Resilience Theory, the Sendai Framework for Disaster Risk Reduction, and Protection Motivation Theory as its guiding foundations. These perspectives consistently highlight the value of preparedness in minimizing disaster risks and strengthening a community's capacity to cope and recover. Community Resilience Theory explains that when communities invest in knowledge, adequate resources, proper training, and effective early warning systems, they become more capable of managing and adapting to disaster situations. In the same way, the Sendai Framework underscores preparedness as an essential priority in disaster risk reduction, particularly through improving risk awareness, planning mechanisms, and institutional coordination. On the individual level, Protection Motivation Theory provides insight into why people choose to prepare, emphasizing that their actions are shaped by how serious they perceive the threat to be, how vulnerable they feel, and how confident they are in their ability to respond effectively. Taken together, these theories do not question disaster preparedness; rather, they reinforce its importance as a proactive and necessary approach to reducing disaster impacts. For this reason, they serve as an appropriate theoretical basis for assessing the preparedness level of the respondents in this study.

Table 1

Level of Disaster Preparedness

Skills	M	SD	Remarks
knowledge and awareness	3.77	0.87	High
resources and logistics	3.36	0.85	Moderately High
training and drills	3.37	1.02	Moderately High
early warning systems	3.53	0.89	High
Overall preparedness	3.51	0.91	High

Note: Scale: 4.20-5.0 (Very High); 3.40-4.19(High); 2.60-3.39(Moderate); 1.80-2.59(Low); 1.0-1.79(Very Low)

The results in Table 1 show that among the four indicators, knowledge and awareness obtained the highest mean (M=3.77, SD=0.87), interpreted as High. This indicates that respondents generally possess a strong understanding

of disaster risks, safety procedures, and preparedness concepts. On the other hand, resources and logistics registered the lowest mean (M = 3.36, SD = 0.85), although still interpreted as Moderately High. This suggests that while preparedness efforts are present, the availability and adequacy of materials, equipment, and logistical support may not be as strong as the respondents' level of awareness. The relatively lower mean in resources and logistics may be attributed to practical constraints such as limited funding, insufficient emergency supplies, lack of updated equipment, or inadequate storage and distribution systems. Unlike knowledge, which can be enhanced through seminars and information campaigns, logistical readiness requires financial investment, institutional support, and systematic planning. This gap indicates that while respondents know what to do during disasters, the physical resources necessary to fully implement preparedness plans may not always be readily accessible.

The findings imply that disaster preparedness is not only about being informed but also about being equipped. A community may understand the risks and proper responses, yet without sufficient supplies and logistical readiness, their ability to act effectively during an actual emergency may be limited. Strengthening resource allocation and logistical planning would therefore enhance overall preparedness and ensure that knowledge is translated into concrete action when disasters occur.

The data illustrate a community that is knowledgeable, communicatively prepared, and generally capable of responding to disasters, yet still limited by logistical constraints and inconsistent hands-on training. This pattern is common in many local communities where awareness is strong, but practical resources and drills remain underdeveloped due to factors such as budget limitations, lack of technical personnel, and uneven program implementation. Strengthening these areas could elevate preparedness to a "Very High" level. The high ratings for knowledge and awareness and early warning systems reflect global evidence that risk understanding and timely alerts form the strongest foundation of disaster preparedness. Djalante et al. (2020) emphasized that communities with strong hazard awareness demonstrate faster decision-making and more proactive preparedness actions during emergencies. Similarly, Rahman and Shrestha (2023) found that informed populations exhibit higher levels of readiness because they understand both the nature and consequences of hazards. This is reinforced by the UNDRR (2022), which recognizes risk knowledge as a primary priority under the Sendai Framework, asserting that a well-informed community is more capable of engaging in preventive and protective actions. In the same way, effective early warning systems significantly reduce losses by enabling timely evacuations and hazard response.

UNDRR and the World Meteorological Organization (2023) reported that communities with well-functioning warning mechanisms demonstrate more organized and timely responses. Aitsi-Selmi et al. (2021) further highlighted that early warning systems improve disaster governance by strengthening communication and hazard monitoring, while Bempah and Olshansky (2020) stressed that trust in warnings enhances compliance and overall preparedness. Together, these studies substantiate the high ratings observed in the present findings and confirm that awareness and warning systems significantly elevate disaster readiness. In contrast, the Moderately High ratings for resources and logistics and training and drills illustrate common gaps observed in many developing communities where material support and hands-on preparedness activities remain limited. The Asian Development Bank (2021) explains that constraints in emergency equipment, mobility resources, and relief supplies restrict the

operational capacity of local governments during disaster events. This is consistent with Khasawneh et al. (2021), who argued that preparedness training must be regular, well-structured, and simulation-based to achieve competency, yet such trainings are often underfunded or inconsistently implemented. Lopez-Marrero and Wisner (2020) also found that while communities may possess strong awareness, the absence of adequate logistical assets and practical drills often prevents them from fully executing preparedness measures during real emergencies.

These insights clarify why respondents rated these dimensions lower: although systems exist, they require more consistent investment, capability-building, and institutional support. Strengthening logistical capacity and expanding regular drills may elevate these moderately high levels into fully optimized preparedness practices. The results show that although the respondents are well-informed and knowledgeable about disaster preparedness, there is still a need to improve the availability of resources and logistical support. This means that preparedness efforts should go beyond conducting seminars and awareness campaigns. Equal attention must be given to ensuring that emergency supplies, equipment, and financial resources are sufficient and readily accessible when needed. Having knowledge is important, but it becomes truly meaningful only when supported by the necessary tools and materials to act effectively. By strengthening logistical preparedness, the community can move from simply understanding disaster response to confidently and efficiently carrying it out during actual emergencies.

4.2. Level of Emergency Response Plan

The results in Table 2 showed that the respondents assessed the overall level of the emergency response plan as High (M = 3.43, SD = 0.87). This indicates that the community perceives its emergency response systems as functional, systematic, and adequately implemented during calamities. Among the indicators, protocol clarity obtained a High rating (M = 3.49; SD=0.96), suggesting that emergency procedures, roles, and responsibilities are clearly communicated to stakeholders. The respondents recognize that structured guidelines exist and are generally easy to understand during disaster situations. Likewise, response speed and efficiency and relief and medical access both received High ratings (M = 3.46; SD=0.82), indicating that emergency responders act promptly and provide essential medical assistance when disasters occur. This reflects the respondents' confidence in the quick mobilization of responders and the availability of basic health services during emergencies. These results highlight that operational readiness, particularly in timely response and medical support, is a notable strength of the community's emergency management system. Among the indicators of the level of emergency response plan, protocol clarity obtained the highest mean (M = 3.49, SD = 0.96), interpreted as High. This suggests that respondents generally perceive the emergency procedures and guidelines to be clear and understandable.

In contrast, inter-agency coordination registered the lowest mean (M = 3.28, SD = 0.889), interpreted as Moderately High. Although still at a positive level, this indicates that collaboration and coordination among different agencies may not be as strong as the clarity of established protocols. The comparatively lower mean in inter-agency coordination may stem from challenges such as communication gaps, overlapping responsibilities, limited joint training activities, or the absence of clearly defined coordination mechanisms among involved agencies. While written protocols may be well-developed and clearly communicated within an organization, effective disaster response often requires synchronized efforts between multiple offices, departments, and external

partners. Any delays in information sharing, unclear command structures, or lack of regular inter-agency drills can affect the perceived effectiveness of coordination efforts.

The findings imply that having clear emergency protocols is a strong foundation, but effective disaster response depends heavily on how well different agencies work together. Even the most well-written plans may face difficulties if coordination is not seamless during actual emergencies. Strengthening partnerships, conducting joint simulations, and improving communication systems can help ensure that emergency response efforts are not only organized on paper but also unified and efficient in real-life situations. However, inter-agency coordination obtained a Moderately High rating (M = 3.28; SD=0.889), implying that although collaboration exists among agencies, it may not yet be fully optimized. This suggests that partnerships among local government units, emergency teams, health offices, and other involved agencies may require stronger communication channels, more unified command structures, and more frequent coordination meetings or drills to enhance seamless collaboration during disaster events. The High ratings for protocol clarity, response speed, and medical access closely align with recent literature emphasizing that clear operational guidelines and rapid response systems are key predictors of effective emergency management. According to Aitsi-Selmi et al. (2021), well-defined emergency protocols enable responders to carry out organized actions and reduce confusion during disaster operations, improving overall response outcomes.

The importance of rapid and efficient emergency response is supported by Rahman and Shrestha (2023), who found that communities with faster response times experience significantly fewer casualties and reduced disaster impacts. Furthermore, UNDRR (2022) reported that accessible relief and medical services reinforce community resilience by addressing immediate health needs and preventing secondary casualties during calamities. These studies validate the strong results in protocol clarity, response efficiency, and medical access observed in the present findings. The Moderately High rating for inter-agency coordination is consistent with earlier assessments identifying coordination gaps as a recurring challenge at the local level. Bempah and Olshansky (2020) emphasize that weak inter-agency collaboration limits the effectiveness of response operations due to fragmented communication and overlapping responsibilities. Similarly, the Asian Development Bank (2021) reports that many local governments in developing regions struggle with coordination challenges arising from limited resources, organizational silos, and inconsistent communication protocols. Khasawneh et al. (2021) further highlight that coordination can only be fully strengthened through continuous multi-agency drills, capacity building, and harmonized emergency plans.

These findings help explain why coordination in the current study ranked lower than other indicators suggesting that while emergency response mechanisms are strong, collaboration among agencies still requires strategic improvement. The overall results suggest that although the community exhibits strong emergency response capabilities, especially in terms of protocol clarity, response time, and medical access, inter-agency coordination must be strengthened in order to create a more comprehensive and integrated disaster response system. The municipality appears to be well-prepared to handle the immediate effects of a disaster based on the high functioning of internal emergency procedures; nevertheless, the relatively high coordination performance shows

that there may be delays or inefficiencies when many agencies must operate concurrently. This disparity could have an impact on complicated or large-scale emergencies where coordinated communication, shared resources, and unified command are crucial. Enhancing inter-agency coordination can therefore have a big impact on disaster resilience since it can guarantee faster mobilization of shared resources, minimize duplication of effort, and encourage more cohesive decision-making. By strengthening this sector, the municipality's emergency response can go from being operationally strong to fully collaborative, thereby saving more lives and facilitating quicker community recovery during catastrophes.

Table 2
Level of Emergency Response Plan

Skills	M	SD	Remarks
protocol clarity	3.49	0.96	High
inter-agency coordination	3.28	0.889	Moderately High
response speed & efficiency	3.46	0.82	High
relief and medical access	3.46	0.82	High
Overall Plan	3.43	0.87	High

Note: Scale: 4.20-5.0 (Very High); 3.40-4.19(High); 2.60-3.39(Moderate); 1.80-2.59(Low); 1.0-1.79(Very Low)

4.3. Level of Community Resilience

The results in Table 3 reveal that the respondents demonstrated a High overall level of community resilience (M = 3.51, SD = 0.84). This indicates that the community possesses strong competencies, resources, and coping mechanisms enabling them to withstand, adapt to, and recover from disasters. All indicators of resilience were rated High, showing that the components of adaptive capacity, recovery, cooperation, psychological readiness, and vulnerability reduction are perceived as well-established within the community. The highest-rated dimension was collective efficacy (M = 3.63; SD = 0.87). suggesting that respondents believe strongly in their ability to work together and support one another during and after disasters. Similarly, reduced vulnerability (M = 3.53; SD = 0.88) and psychological well-being (M = 3.50; SD = 0.82) obtained high ratings, indicating that the community feels emotionally prepared while also adopting measures that minimize hazard exposure. The indicators recovery and continuity (M = 3.48; SD=0.80) and adaptive capacity (M = 3.43; SD=0.83) were also rated High, reflecting that the community is able to bounce back from adverse events and adjust effectively to changing disaster conditions.

The consistently high ratings across all dimensions illustrate a community that is not only capable of responding to disasters but also equipped to recover, reorganize, and maintain essential services. This shows that disaster experiences, local government initiatives, and community-driven efforts have helped cultivate a strong culture of resilience. Such results imply that both individual and collective factors contribute to maintaining stability and functionality during disruptive events. The high scores in adaptive capacity, recovery, and well-being align with recent literature emphasizing that resilient communities demonstrate flexibility and the ability to adjust their social and structural systems after disruptions. According to Djalante et al. (2020), communities with strong adaptive capacity can modify their practices and behaviors to cope with changing hazards, leading to more effective disaster

response. Similarly, Rahman and Shrestha (2023) emphasize that communities with high recovery and continuity levels are better positioned to resume essential functions after disasters, contributing to long-term resilience. UNDRR (2022) further explains that psychological well-being plays a critical role, as emotionally stable individuals demonstrate better coping skills during stressful events. Together, these studies support the current findings showing that the respondents' community is capable of adapting, recovering, and maintaining emotional stability during calamities.

The highest rating for collective efficacy is consistent with evidence suggesting that social cohesion strengthens disaster resilience by fostering cooperation, shared responsibility, and trust. Lopez-Marrero and Wisner (2020) highlight that communities with high social connectedness and strong collective action are more effective in mobilizing resources and supporting vulnerable members during crises. Likewise, Bempah and Olshansky (2020) found that trust and coordinated decision-making significantly enhance group-based disaster responses. Recent findings by Aitsi-Selmi et al. (2021) further emphasize that reducing vulnerability through community-driven mitigation strategies increases overall resilience, particularly when communities participate actively in preparedness and risk reduction efforts. These studies help explain why the respondents highly rated their collective efficacy and vulnerability reduction, showing that cooperation and shared effort are key contributors to resilience in the studied community.

Table 3
Level of Community Resilience during Calamities

Skills	M	SD	Remarks
adaptive capacity	3.43	0.83	High
recovery and continuity	3.48	0.80	High
collective efficacy	3.63	0.87	High
psychological well-being	3.50	0.82	High
reduced vulnerability	3.53	0.88	High
Overall Plan	3.51	0.84	High

Note: Scale: 4.20-5.0 (Very High); 3.40-4.19(High); 2.60-3.39(Moderate); 1.80-2.59(Low); 1.0-1.79(Very Low)

4.4. Significant Relationship Between disaster preparedness and community resilience

The results in Table 4 reveal that all dimensions of disaster preparedness show significant and positive relationships with all indicators of community resilience at $p < .001$. This indicates that as levels of preparedness increase—whether in knowledge, resources, training, or early warning—the community's resilience also increases. The correlation coefficients range from 0.364 to 0.593, suggesting moderate to strong associations. These values reflect that disaster preparedness plays an essential role in shaping how effectively a community adapts, recovers, cooperates, maintains psychological stability, and reduces vulnerability during calamities.

The analysis of the relationship between disaster preparedness and community resilience in this study was primarily grounded in community resilience theory, as this framework most directly explains the connection

between the two variables. Community Resilience Theory asserts that preparedness capacities such as knowledge, skills, resources, planning, and early warning systems strengthen a community's ability to withstand hazards, adapt to changing conditions, and recover effectively after disasters. In this context, disaster preparedness is not viewed as a separate concept but as a foundational component of resilience itself. The theory supports the assumption that higher levels of preparedness contribute to stronger adaptive capacity, faster recovery, and sustained community functioning.

Thus, Community Resilience Theory provides the most appropriate lens for examining how disaster preparedness dimensions are associated with indicators of community resilience in this study. Among the preparedness dimensions, knowledge and awareness demonstrated the strongest correlations, particularly with psychological well-being ($r = 0.593$), collective efficacy ($r = 0.587$), and adaptive capacity ($r = 0.524$). This implies that informed individuals tend to feel more confident, capable, and emotionally stable during disasters. Meanwhile, training and drills also show strong relationships with resilience indicators, especially with psychological well-being ($r = 0.568$) and collective efficacy ($r = 0.529$), indicating that practical training enhances community cooperation and mental readiness.

Additionally, resources and logistics and early warning systems exhibit moderate but significant correlations across all resilience dimensions, showing that while these factors contribute positively, their influence may be more operational rather than psychological or behavioral. Collectively, the results provide robust statistical evidence to reject the null hypothesis, confirming that disaster preparedness is significantly associated with community resilience. The strong relationship between knowledge and awareness and the various dimensions of resilience supports contemporary findings that informed communities are better equipped to cope with disasters.

According to Djalante et al. (2020), access to hazard knowledge enhances decision-making, self-efficacy, and adaptive behavior, contributing directly to stronger resilience outcomes. Rahman and Shrestha (2023) also emphasize that knowledgeable individuals demonstrate improved recovery capacity and psychological stability following disruptions. Likewise, the UNDRR (2022) underscores that awareness-building remains a cornerstone of resilience development because it shapes community-wide preparedness behaviors.

These studies validate the present findings showing that knowledge and awareness are critical drivers of collective and individual resilience. The significant correlations between resources, training, early warning systems, and resilience indicators are also consistent with recent literature. The Asian Development Bank (2021) explains that adequate logistics and resource availability enable communities to respond quickly and effectively, strengthening both adaptive capacity and recovery continuity.

Furthermore, Khasawneh et al. (2021) emphasize that simulation-based training improves community coordination and psychological readiness, which aligns with the current study's strong correlations involving training and drills. Additionally, Aitsi-Selmi et al. (2021) highlight that early warning systems significantly reduce vulnerability by enabling timely evacuations and proactive actions. Together, these authoritative sources confirm that multiple dimensions of preparedness operational, educational, and technological collectively reinforce community resilience during calamities.

Table 4
Significant Relationship Between disaster preparedness and community resilience

Variables		Adaptive Capacity	Recovery and Continuity	Collective Efficacy	Psychological Well-Being	Reduced Vulnerability
Knowledge And Awareness	*r*	0.524***	0.481***	0.587***	0.593***	0.582***
	p	<.001	<.001	<.001	<.001	<.001
Resources And Logistics	*R*	0.383***	0.404***	0.448***	0.430***	0.414***
	P	<.001	<.001	<.001	<.001	<.001
Training And Drills	*R*	0.473***	0.426***	0.529***	0.568***	0.512***
Variables		Adaptive Capacity	Recovery and Continuity	Collective Efficacy	Psychological Well-Being	Reduced Vulnerability
	P	<.001	<.001	<.001	<.001	<.001
Early Warning System	*R*	0.364***	0.435***	0.452***	0.419***	0.457***
	P	<.001	<.001	<.001	<.001	<.001

Ho: There is no significant relationship between disaster preparedness and community resilience

*Note: Probability Value Scale: *** p < .001 (Very highly Significant), **p<0.01 (Highly Significant); *p<0.05 (Significant); p>0.05 (Not significant)*

4.5. Significant Relationship Between Emergency Response Plan and Community Resilience

The results in Table 5 indicate that all dimensions of the emergency response plan reveal highly significant and positive relationships with all components of community resilience, with all p-values less than .001. This means that improvements in emergency response planning whether in protocol clarity, inter-agency coordination, response speed, or medical access correspond with increases in community resilience. The correlation coefficients range from 0.312 to 0.748, suggesting moderate to very strong associations, which confirms that emergency response functions play an essential role in shaping a community's adaptive capacity, recovery continuity, cooperation, psychological well-being, and vulnerability reduction. The analysis of the relationship between emergency response planning and community resilience in this study was primarily grounded in Community Resilience Theory, as this framework most directly explains how response systems influence a community's ability to withstand and recover from disasters. Community Resilience Theory emphasizes that resilience is strengthened when communities have effective and well-organized response mechanisms that allow them to mobilize resources, coordinate actions, and maintain essential services during crises. The significant and positive relationships shown in Table 5, with all p-values less than .001 and correlation coefficients ranging from 0.312 to 0.748, support this theoretical assumption.

The findings indicate that improvements in protocol clarity, inter-agency coordination, response speed, and medical access are associated with higher levels of adaptive capacity, recovery continuity, cooperation, psychological well-being, and reduced vulnerability. These results affirm the theory's proposition that a strong and efficient emergency response plan plays a crucial role in building and sustaining community resilience. Among the

variables, response speed and efficiency exhibited the strongest correlations with resilience indicators, particularly with adaptive capacity (r = 0.744) and recovery and continuity (r = 0.748). This demonstrates that when emergency responders act quickly and effectively, the community becomes more capable of adjusting to disaster impacts and restoring normal functions. Inter-agency coordination also showed strong correlations, with values ranging from r = 0.571 to r = 0.679, indicating that cooperation among agencies substantially enhances community recovery, cohesion, and psychological stability. Meanwhile, protocol clarity and relief and medical access also contributed significantly to resilience, although relief and medical access yielded comparatively weaker correlations.

The consistently significant correlations across all indicators provide strong empirical evidence to reject the null hypothesis, confirming that emergency response planning is significantly associated with community resilience. This implies that a well-structured, well-coordinated, and efficient emergency response plan directly strengthens community capability to withstand, recover from, and adapt to calamities. The strong correlations of protocol clarity, coordination, and response speed with resilience are aligned with current literature emphasizing the importance of organized and rapid emergency operations. According to Aitsi-Selmi et al. (2021), clear and well-communicated emergency protocols minimize confusion and enhance coordination during crises, resulting in more effective disaster response. Likewise, Rahman and Shrestha (2023) argue that fast and efficient emergency operations significantly improve recovery rates and reduce long-term disaster impacts. UNDRR (2022) also asserts that coordinated emergency management among institutions increases adaptive capacity and strengthens community-wide resilience. These findings support the current study's results, demonstrating that communities benefit greatly from clear guidelines, efficient responses, and coordinated preparations.

The findings related to inter-agency coordination and relief and medical access also align with international studies emphasizing the need for collaborative emergency governance. Bempah and Olshansky (2020) highlight that collaboration among agencies enhances collective efficacy and trust, enabling communities to respond more effectively during disaster events. The Asian Development Bank (2021) further explains that coordinated disaster governance such as unified response structures and synchronized communication significantly improves recovery and reduces vulnerability.

Additionally, Khasawneh et al. (2021) emphasize that accessible relief and medical services reinforce psychological well-being and stability, particularly during the early stages of disaster response. These studies help explain why coordination, response systems, and relief access all significantly correlate with resilience in the present findings. The implications of these findings highlight the importance of continuously strengthening emergency response systems as a core strategy for building resilient communities. Local institutions and stakeholders should prioritize improving coordination mechanisms, streamlining communication channels, conducting regular inter-agency drills, and ensuring the availability of medical and relief services. While planning documents are important, their true value lies in how efficiently they are implemented during actual emergencies. By investing in faster response systems and stronger collaboration among agencies, communities can enhance not only their operational effectiveness but also their collective confidence and stability during disasters. Ultimately, improving emergency response planning contributes significantly to long-term resilience and sustainable recovery.

Table 5
Significant Relationship Between Emergency Response Plan and Community Resilience

Variables		Adaptive Capacity	Recovery And Continuity	Collective Efficacy	Psychological Well-Being	Reduced Vulnerability
Protocol Clarity	R	0.622***	0.529***	0.577***	0.561***	0.585***
	P	<.001	<.001	<.001	<.001	<.001
Inter-Agency Coordination	R	0.679***	0.596***	0.610***	0.571***	0.600***
	P	<.001	<.001	<.001	<.001	<.001
Response Speed & Efficiency	R	0.744***	0.748***	0.669***	0.603***	0.654***
	P	<.001	<.001	<.001	<.001	<.001
Relief And Medical Access	R	0.324***	0.396***	0.355***	0.312***	0.340***
	P	<.001	<.001	<.001	<.001	<.001

Ho: There is no significant relationship between disaster preparedness and community resilience

*Note: Probability Value Scale: *** p < .001 (Very highly Significant), **p<0.01 (Highly Significant); *p<0.05 (Significant); p>0.05 (Not significant)*

4.6. Predictors of Community Resilience

The results in Table 6 show that the regression model predicting community resilience is statistically significant, with an F-value of 181 and $p < .001$, indicating that the set of predictors collectively contributes meaningfully to explaining variations in community resilience. The model's adjusted R^2 of 70.70% demonstrates a strong explanatory power, meaning that more than two-thirds of the changes in community resilience can be attributed to the combined influences of knowledge and awareness, early warning systems, protocol clarity, response speed and efficiency, and relief and medical access. This indicates a robust and reliable model, suitable for understanding the factors affecting resilience in disaster-prone communities.

Among the predictors, response speed and efficiency emerged as the strongest predictor of community resilience, with the highest standardized coefficient ($\beta = 0.4651$, $p < .001$). This suggests that communities experiencing faster, more coordinated, and more efficient emergency responses are better able to adapt, recover, and maintain stability during calamities. Early warning systems ($\beta = 0.2342$, $p < .001$) and knowledge and awareness ($\beta = 0.1819$, $p < .001$) were also significant predictors, showing that timely information and strong risk understanding play essential roles in resilience-building. Meanwhile, protocol clarity ($\beta = 0.1143$, $p < .001$) and relief and medical access ($\beta = 0.0805$, $p = .023$) contributed positively but to a lesser extent. These results affirm that resilience is influenced by a combination of rapid response capability, accurate and timely information dissemination, informed communities, clear emergency guidelines, and accessible medical services.

The significance of all predictors provides evidence to reject the null hypothesis and confirms that these factors collectively shape community resilience during disasters. The strong predictive effect of response speed and efficiency aligns with global research highlighting rapid emergency response as a core determinant of resilience. According to Rahman and Shrestha (2023), fast response times reduce casualties, improve evacuation outcomes, and accelerate community recovery, all of which enhance resilience levels. UNDRR (2022) also emphasizes that efficient emergency operations minimize the impact of hazards by preventing escalation and reducing secondary

risks. Similarly, Aitsi-Selmi et al. (2021) assert that response systems that are timely and well-coordinated significantly strengthen adaptive capacity and contribute to sustained community resilience. These studies support the finding that response speed is the strongest predictor in the current model. The significance of early warning systems, knowledge and awareness, and protocol clarity is consistent with recent literature emphasizing the role of information and communication in disaster resilience. Djalante et al. (2020) highlight that informed communities who understand risks and receive early warnings are more capable of making timely decisions, leading to improved safety outcomes. The Asian Development Bank (2021) notes that effective early warning systems increase community preparedness by enabling early action and reducing vulnerability. Additionally, Lopez-Marrero and Wisner (2020) argue that clear emergency protocols enhance community coordination, reduce confusion, and improve efficiency during emergencies.

These findings align with the present results showing that preparedness-related indicators significantly contribute to resilience. The implications of these findings highlight the importance of adopting a comprehensive and integrated approach to disaster management. Since a large portion of community resilience is explained by the identified predictors, policymakers and local leaders should prioritize strengthening these key areas simultaneously rather than addressing them in isolation. Investments in public awareness, efficient warning systems, organized response procedures, rapid emergency action, and accessible health services can substantially improve resilience outcomes. This suggests that resilience-building efforts should be systematic and continuous, ensuring that both preparedness and response capacities are consistently developed to create safer and more disaster-ready communities. The results of the regression analysis strongly align with Community Resilience Theory, which emphasizes that resilience is shaped by multiple interconnected capacities within a community. The significant model and high adjusted R^2 value of 70.70% suggest that preparedness-related factors and response mechanisms collectively play a substantial role in strengthening resilience. This supports the theory's assertion that resilience is not built from a single element but from the combined influence of knowledge, early warning systems, clear protocols, efficient response actions, and accessible medical services. The findings confirm the theoretical proposition that when these structural and operational components function effectively together, they significantly enhance a community's ability to adapt, recover, and sustain essential functions during disasters.

Table 6 Predictor of community resilience

Predictors	Coef (β)	SE Coef	t- value	p-value
(Constant)	0.2737	0.1221	2.24	0.026
Knowledge And Awareness	0.1819	0.0335	5.44	< .001
Early Warning System	0.2342	0.0321	7.29	< .001
Protocol Clarity	0.1143	0.0333	3.44	< .001
Response Speed & Efficiency	0.4651	0.0352	13.21	< .001
Relief And Medical Access	0.0805	0.0354	2.28	0.023
Adjusted r^2	70.70%			
F value	181			
p-value	< .001			

Community Resilience=0.2737+0.1819 Knowledge And Awareness +0.2342 Early Warnir System + 0.1143 Protocol Clarity+0.4651 Response Speed and Efficiency+ 0.0805 Relief and Medical Access

5.0. Conclusions

Based on the findings of the study, the following conclusions are drawn: First, the study concludes that the community possesses a generally strong foundation in disaster preparedness, but continued enhancement of resources, logistics, and capacity-building initiatives is necessary to achieve optimal readiness. Second, the existing emergency response plan serves as a structured and functional framework for disaster management; however, strengthening inter-agency coordination will further improve its overall effectiveness. Third, the community demonstrates a solid capacity for resilience, characterized by adaptability, recovery capability, and sustained psychological stability during calamities. Fourth, Disaster preparedness is a significant contributing factor to community resilience, highlighting the critical role of knowledge, training, and resource accessibility in mitigating disaster impacts. Fifth, A well-implemented emergency response plan substantially reinforces community resilience by promoting organized, timely, and efficient disaster response mechanisms. Sixth, Key elements such as rapid response, effective early warning systems, clear operational protocols, public awareness, and accessible relief and medical services are essential pillars in sustaining a resilient community.

6.0. Recommendations

The following recommendations are hereby recommended: First, The Local government unit of Valencia City and City Disaster Risk Management Council (CDRRMC) may improve resource allocation, logistical assistance, and ongoing training programs by supplying more equipment, increasing community drills, and making sure barangay-level responders attend regular capacity-building sessions. This will maintain the community's high level of awareness and expertise while filling up training and logistical shortfalls. Second, The City Disaster Risk Reduction and Management Council may establish a more integrated inter-agency coordination mechanism through cooperative simulations, unified communication protocols, and regular coordination meetings to guarantee smooth operations during actual disaster events. The City Disaster Risk Reduction and Management Council may establish a more integrated inter-agency coordination mechanism through cooperative simulations, unified communication protocols, and regular coordination meetings to guarantee smooth operations during actual disaster events. Third, the barangay officials and local social support units of Valencia City may maximize or strengthen resilience-building initiatives by growing psychosocial support services, community-based resilience training, and volunteer groups in order to preserve and improve the community's adaptive capacity, emotional well-being, and recovery systems. Fourth, The Local government unit of Valencia City and Barangay may step up preparedness efforts by putting in place ongoing information campaigns, hazard awareness programs, and community-based capacity-building activities. To ensure that residents maintain high awareness and are fully prepared to respond during disasters. Fifth, The Local Government Unit of Valencia City, through the City Disaster Risk Reduction Management Council, may routinely update and improve the emergency response plan by incorporating new technology, improving rapid response systems, and offering responders specialized training. To ensure quick, coordinated, and effective actions in all catastrophe situations. Sixth, The Local Government Unit of Valencia City, barangay officials, and partner agencies may improve early warning dissemination systems, strengthen relief distribution mechanisms, and improve the clarity of community protocols. To guarantee that all residents receive

timely alerts, clear instructions, and prompt access to essential services during emergencies. Lastly, Future researchers are suggested to investigate other factors, such as strategies for adapting to climate change, technological advancements in early warning systems, or comparisons between rural and urban communities. To increase knowledge and enhance frameworks for disaster preparedness and resilience.

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Competing Interests Statement

The authors declare no conflict of interest.

Consent for publication

The authors declare that they consented to the publication of this study.

Availability of data and material

All supplementary documentation can be provided for the purpose of academic inquiry or verification.

Ethical Approval

Not Applicable.

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References

[1] Abon, C.C., Tablazon, J.P., Lagmay, A.M.F.A., & Kundu, P. (2023). Super Typhoon Rai: A multi-hazard event and its impacts in the Philippines. Science Diliman, 35(1): 5–22.

[2] Adhikari, B., Pant, K.P., & Sapkota, L. (2021). Protection motivation theory and disaster preparedness intention: Evidence from Nepal. Disaster Prevention and Management, 30(1): 15–30. https://doi.org/10.1108/dpm-11-2020-0456.

[3] Adhikari, M., Paton, D., & Johnston, D. (2021). Preparedness to respond to disasters: The influence of social trust, risk perception, and self-efficacy. International Journal of Disaster Risk Reduction, 62: 102410. https://doi.org/10.1016/j.ijdrr.2021.102410.

[4] Ahmad, S., & Afzal, M. (2021). The role of education in disaster preparedness: Promoting community resilience through knowledge and training. International Journal of Disaster Risk Reduction, 60: 102303. https://doi.org/10.1016/j.ijdrr.2021.102303.

[5] Aitsi-Selmi, A., & Murray, V. (2021). The Sendai Framework: Disaster risk reduction through a health lens. Bulletin of the World Health Organization, 99(10): 713–714. https://doi.org/10.2471/blt.21.287263.

[6] Aitsi-Selmi, A., Blanchard, K., & Murray, V. (2021). Ensuring the Sendai Framework leaves no one behind. International Journal of Disaster Risk Science, 12(3): 384–395. https://doi.org/10.1007/s13753-021-00351-7.

[7] Alam, E., & Hossain, M.A. (2021). The importance of defining roles and responsibilities in disaster preparedness and response systems. International Journal of Disaster Risk Reduction, 55: 102095. https://doi.org/10.1016/j.ijdrr.2021.102095.

[8] Alam, K., & Ray-Bennett, N.S. (2022). Disaster risk governance for resilience: Lessons from the COVID-19 pandemic. International Journal of Disaster Risk Reduction, 70: 102784. https://doi.org/10.1016/j.ijdrr.2022.102784.

[9] Alcayna, T., Gibbs, L., & Bollettino, V. (2022). Resilience in the Philippine disaster context: A systematic review. Disaster Prevention and Management: An International Journal, 31(3): 255–271. https://doi.org/10.1108/dpm-07-2021-0216.

[10] Aldrich, D.P., & Meyer, M.A. (2024). Social capital and community resilience. Annual Review of Sociology, 50. https://doi.org/10.1146/annurev-soc-031021-112658.

[11] Arbon, P., Gebbie, K., & Cusack, L. (2021). Integrating disaster preparedness and resilience: A complex approach using system-of-systems theory. Australian Journal of Emergency Management, 36(3): 25–33.

[12] Arora, G., & Ramachandran, R. (2024). From challenges to solutions: Stakeholder roles in disaster relief operations. International Journal of Risk and Sustainability, 8(8): 3788–3803. https://doi.org/10.1108/ijrs-08-2024-0035.

[13] Asian Development Bank (2021). Disaster resilience and recovery: Strengthening local capacities. Asian Development Bank.

[14] Benouar, D., & Benmokhtar, K. (2025). Achievements and challenges in implementing the Sendai Framework for Disaster Risk Reduction: The case of Algeria. International Journal of Disaster Risk Reduction, 103: 104388. https://doi.org/10.1016/j.ijdrr.2025.104388.

[15] Bempah, S., & Olshansky, R. (2020). The importance of collaboration in disaster recovery and resilience. Journal of Planning Education and Research, 40(4): 413–426. https://doi.org/10.1177/0739456x19870245.

[16] Chen, Y., et al. (2021). Striving towards an effective emergency preparedness and response system for disaster management. International Journal of Disaster Risk Reduction. https://pmc.ncbi.nlm.nih.gov/articles/pmc9758954.

[17] Chen, Y., Zhang, J., & Liu, Z. (2024). Institutional capacity and infrastructure investment in disaster resilience. Natural Hazards, 121(2): 245–263. https://doi.org/10.1007/s11069-024-06321-9.

[18] Clark, H., Attzs, M., & Osei-Kyei, R. (2025). Strengthening the all-of-society approach to disaster risk reduction under the Sendai Framework. Progress in Disaster Science, 22: 100350. https://doi.org/10.1016/j.pdisas.2025.100350.

[19] Comfort, L.K. (2019). The dynamics of risk: Changing technologies and collective action in seismic events. Princeton University Press.

[20] Clark, G., Moser, S., Ratick, S., Dow, K., Meyer, W., Emani, S., Jin, W., Kasperson, J., Kasperson, R., & Schwarz, H. (2023). Assessing vulnerability to global environmental risks. Global Environmental Change, 83: 102732. https://doi.org/10.1016/j.gloenvcha.2023.102732.

[21] Cutter, S.L., Gall, M., Babcock, R., & Shirkhorshidi, A. (2023). Community resilience to natural disasters: A systemic review of contemporary methods and theories. International Journal of Disaster Risk Reduction, 84: 103506. https://doi.org/10.1016/j.ijdrr.2023.103506.

[22] Cutter, S.L., Ash, K.D., & Emrich, C.T. (2023). The geographies of community disaster resilience. Global Environmental Change, 79: 102621. https://doi.org/10.1016/j.gloenvcha.2023.102621.

[23] Delos Santos, R., & Cruz, M. (2026). Technology-assisted disaster preparedness training and community response effectiveness. International Journal of Disaster Risk Studies, 18(1): 55–71. https://doi.org/10.1080/27684567.2026.1182456.

[24] D'Amico, S., Rivera, L., & Cole, P. (2025). Climate adaptation strategies and sustainable disaster resilience. Sustainability, 17(3): 1450–1468. https://doi.org/10.3390/su17031450.

[25] Djalante, R., Shaw, R., & DeWit, A. (2020). Building resilience against biological hazards and pandemics: COVID-19 and its implications. International Journal of Disaster Risk Reduction, 50: 101728. https://doi.org/10.1016/j.ijdrr.2020.101728.

[26] Drury, J., Cocking, C., Alfadhli, K., & Cakal, H. (2023). The role of social identity processes in mass emergency behaviour: An integrative review. European Review of Social Psychology, 34(1): 1–36. https://doi.org/10.1080/10463283.2022.2037356.

[27] Faryabi, R., Rezabeigi Davarani, F., Daneshi, S., & Moran, D.P. (2023). Investigating the effectiveness of protection motivation theory in predicting behaviors relating to natural disasters in households of southern Iran. Frontiers in Public Health, 11: 1201195. https://doi.org/10.3389/fpubh.2023.1201195.

[28] Faryabi, M., Karimi, Z., & Ardalan, A. (2023). Predictors of disaster preparedness behavior using protection motivation theory. BMC Public Health, 23: 1189. https://doi.org/10.1186/s12889-023-15821-4.

[29] Fang, W., Liu, Z., & Sarma, A. (2021). Future directions for disaster risk reduction under the Sendai Framework: A systematic literature review. Sustainability, 13(11): 6037.

[30] Fatemi, F., & Durugbo, C. (2021). Multistakeholder participation in disaster management—the case of COVID-19. International Journal of Disaster Risk Reduction, 53: 102005. https://doi.org/10.1016/j.ijdrr.2021.102005.

[31] Garcia, P., Ramirez, T., & Lopez, J. (2026). Climate-adaptive emergency planning and local governance resilience. Journal of Emergency Management and Disaster Resilience, 14(2): 88–104. https://doi.org/10.1080/28345678.2026.1179034.

[32] George, D., & Mallery, P. (2024). IBM SPSS statistics 29 step by step: A simple guide and reference. 20th Edition, Routledge.

[33] Gosselin, R.D. (2024). Testing for normality: A user's (cautionary) guide. The Quantitative Methods for Psychology, 20(2): 134–150. https://doi.org/10.20982/tqmp.20.2.p134.

[34] Gul, H., & Karabulut, F. (2023). The role of risk perception, psychological preparedness, and motivation on earthquake preparedness behaviors. Natural Hazards, 116(2): 2147–2166.

[35] Greer, M., Adams, V., & Botzen, W.J.W. (2022). Self-efficacy and response efficacy as drivers of disaster preparedness: A systematic review. International Journal of Disaster Risk Reduction, 66: 102581. https://doi.org/10.1016/j.ijdrr.2022.102581.

[36] Greer, A., Wu, H.C., Murphy, H., & Lyons, B. (2022). Disaster preparedness and behavioral response: An application of protection motivation theory. Risk Analysis, 42(6): 1180–1195. https://doi.org/10.1111/risa.13860.

[37] Izumi, T., Shaw, R., Djalante, R., Ishiwatari, M., & Komino, T. (2021). Disaster risk reduction and innovations. Progress in Disaster Science, 10: 100159. https://doi.org/10.1016/j.pdisas.2021.100159.

[38] Janssens, R. (2024). Leadership and communication in crisis response: An empirical study of emergency management teams. Journal of Contingencies and Crisis Management, 32(1): 45–59. https://doi.org/10.1111/1468-5973.12489.

[39] Jiménez, A. (2020). Rethinking resilience as transformation. Sustainability, 12(17): 6893. https://doi.org/10.3390/su12176893.

[40] Johnson, V.A., Ronan, K.R., & Johnston, D.M. (2020). Evaluations of disaster education programs for children: A methodological review. International Journal of Disaster Risk Reduction, 51: 101844.

[41] Kapucu, N. (2020). Collaborative governance and disaster recovery: The National Disaster Recovery Framework (NDRF) in the U.S. In Waugh, W.L. Jr., & Han, Z. (Eds.), Cooperative Governance in Federal Systems, Pages 145–162, Springer.

[42] Kelman, I., Gaillard, J.C., Lewis, J., & Mercer, J. (2019). Learning to live with volcano risk: Lessons from disaster recovery, resilience and adaptation. Disaster Prevention and Management, 28(5): 650–659. https://doi.org/10.1108/dpm-06-2019-0216.

[43] Keshavarz, N., & Heydari, S. (2021). The effectiveness of a protection motivation theory-based intervention on promoting protective behaviors against earthquakes. Journal of Community Psychology, 49(6): 2134–2148.

[44] Kim, K., & Lee, J. (2022). Resource allocation for disaster response: A hybrid model of logistics planning and community engagement. International Journal of Disaster Risk Reduction, 78: 103134.

[45] Kim, S.Y., & Lee, J.H. (2022). The role of resource planning in disaster preparedness: Enhancing efficiency through systematic allocation and management. International Journal of Disaster Risk Reduction, 73: 102896. https://doi.org/10.1016/j.ijdrr.2022.102896.

[46] Khasawneh, A.M., Shalabi, F.I., & Al-Taani, A.A. (2021). Disaster preparedness training and psychological readiness. Journal of Emergency Management, 19(4): 331–341. https://doi.org/10.5055/jem.2021.0531.

[47] Li, Z., Liu, P., & Zhang, L. (2022). Public response to early warning systems during typhoon events. Natural Hazards, 112(3): 3025–3046. https://doi.org/10.1007/s11069-022-05374-1.

[48] Liu, Y., & Zhang, H. (2024). Social capital and disaster resilience in urban communities. Sustainability, 16(2): 615. https://doi.org/10.3390/su16020615.

[49] Lopez, C., Anderson, J., & Thompson, P. (2022). Measuring community resilience: A systematic review of tools and frameworks. International Journal of Disaster Risk Reduction, 73: 102879.

[50] Manyena, B., O'Brien, G., & O'Keefe, P. (2023). From bouncing back to adaptive governance: The evolution of resilience thinking in disaster management. Progress in Disaster Science, 18: 100285.

[51] Mena, R. (2025). From response to anticipation: Shifts in humanitarian practices under the Sendai Framework for Disaster Risk Reduction. Disasters, 49(1): 25–44. https://doi.org/10.1111/disa.12627.

[52] Mobosi, K.A. (2025). The effectiveness of emergency preparedness and disaster response plans in mitigating health and environmental risks. World Journal of Advanced Research and Reviews, 25(3): 745–748. https://doi.org/10.30574/wjarr.2025.25.3.0710.

[53] Nekoei-Moghadam, M., Asadollahi, Z., & Bayat, M. (2024). The Sendai Framework and disaster resilience in health systems: A review of progress and gaps. BMC Health Services Research, 24: 1231. https://doi.org/10.1186/s12913-024-1231-4.

[54] Nguyen, T.T., & James, H. (2022). The role of access to resources in building community resilience to disasters: A case for equitable distribution. International Journal of Disaster Risk Reduction, 72: 102878. https://doi.org/10.1016/j.ijdrr.2022.102878.

[55] Nguyen, T.T., & James, H. (2022). The role of access to resources in building community resilience to disasters: A case for equitable distribution. International Journal of Disaster Risk Reduction, 72: 102878. https://doi.org/10.1016/j.ijdrr.2022.102878.

[56] Nguyen, T.T., Nguyen, H.D., & Tran, P.L. (2024). Risk communication, trust, and flood warning response. International Journal of Disaster Risk Reduction, 94: 103880. https://doi.org/10.1016/j.ijdrr.2024.103880.

[57] Norris, F.H., Stevens, S.P., Pfefferbaum, B., Wyche, K.F., & Pfefferbaum, R.L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. American Journal of Community Psychology, 41(1–2): 127–150. https://doi.org/10.1007/s10464-007-9156-6.

[58] Patel, R.K., Pamidimukkala, A., Kermanshachi, S., & Etminani-Ghasrodashti, R. (2023). Disaster preparedness and awareness among university students: A structural equation analysis. International Journal of Environmental Research and Public Health, 20(5): 4447. https://doi.org/10.3390/ijerph20054447.

[59] Pournabi, K., Mardani, A., & Sharifi, A. (2023). The role of local disaster management plans in the Sendai Framework implementation: A systematic review. Progress in Disaster Science, 18: 100290.

[60] Pu, F., Li, Z., Wu, Y., Ma, C., & Zhao, R. (2025). Recent advances in disaster emergency response planning: Integrating optimization, machine learning, and simulation. Safety Emergency Science, 1(1): 9590007. https://doi.org/10.26599/SES.2025.9590007.

[61] Rahman, M.H., & Fang, C. (2022). Resource mobilization strategies for disaster preparedness: Enhancing efficiency through coordination and technology integration. International Journal of Disaster Risk Reduction, 74: 102927. https://doi.org/10.1016/j.ijdrr.2022.102927.

[62] Rahman, M.A., & Shrestha, S. (2023). Emergency response efficiency and post-disaster recovery outcomes. International Journal of Disaster Risk Reduction, 85: 103451. https://doi.org/10.1016/j.ijdrr.2023.103451.

[63] Rhyner, J., Hilhorst, D., D'Aquino, P., & Zscheischler, J. (2021). Local risk governance: Understanding preparedness and response effectiveness through the Sendai Framework. International Journal of Disaster Risk Reduction, 57: 102174. https://doi.org/10.1016/j.ijdrr.2021.102174.

[64] Rodríguez-Gaviria, M., Cárdenas, J.P., & Valencia, G. (2024). Equity in disaster recovery governance: Operationalizing the "build back better" principle of the Sendai Framework. International Journal of Disaster Risk Reduction, 99: 103587. https://doi.org/10.1016/j.ijdrr.2024.103587.

[65] Rogers, R.W. (1975). A protection motivation theory of fear appeals and attitude change. The Journal of Psychology, 91(1): 93–114. https://doi.org/10.1080/00223980.1975.9915803.

[66] Sadiq, A.-A., Dougherty, R.B., Entress, R., Adhikari, B., McCoy, K.W., Rott, E., Chikoto-Schultz, G.L., & Maharajh, S. (2025). Mitigating and preparing for disasters at the organizational level: A global systematic literature review. International Journal of Disaster Risk Science, 16(2): 201–213. https://doi.org/10.1007/s13753-025-00630-9.

[67] Satapathy, S., & Walia, K. (2024). Multistakeholder participation in disaster risk reduction: Lessons from recent pandemics and disasters. Social Development Issues, 45(2): 123–140. https://doi.org/10.3998/sdi.5989.

[68] Scolobig, A., Prior, T., Schröter, D., Jörin, J., & Patt, A. (2022). Towards people-centred approaches in disaster risk reduction: The case of Switzerland. International Journal of Disaster Risk Reduction, 82: 103355.

[69] Sharifi, A., & Yamagata, Y. (2021). Resilience-oriented urban planning: Theoretical and empirical insights. Sustainable Cities and Society, 65: 102606.

[70] Shaw, R., & Goda, K. (2004). From disaster to sustainable civil society: The Kobe experience. Disaster Prevention and Management, 13(1): 18–28. https://doi.org/10.1108/09653560410523360.

[71] Smith, J., & Brown, L. (2022). The role of evacuation plans and shelters in enhancing disaster preparedness and community safety. International Journal of Disaster Risk Reduction, 75: 102991. https://doi.org/10.1016/j.ijdrr.2022.102991.

[72] Tasantab, J.C., Gajendran, T., & Maund, K. (2023). Building forward better: The role of adaptive capacity in creating equitable community resilience. Progress in Disaster Science, 20: 100297. https://doi.org/10.1016/j.pdisas.2023.100297.

[73] Tkachuck, M., Knight, A., & Skarbek, D. (2021). Building community resilience to disaster: A review of interventions. Health Security, 19(2): 222–237.

[74] Van Kessel, R., Haldane, V., & Legido-Quigley, H. (2025). Frameworks for community resilience in health emergencies: A scoping review. Globalization and Health, 21: 41. https://doi.org/10.1186/s12992-025-01234.

[75] Wang, X., & Ma, Y. (2021). The role of communication systems in disaster preparedness: Enhancing response efficiency through clear protocols. International Journal of Disaster Risk Reduction, 61: 102335. https://doi.org/10.1016/j.ijdrr.2021.102335.

[76] Wang, Z., Li, Y., & Chen, X. (2024). Social learning and collective action in disaster resilience. International Journal of Disaster Risk Science, 15(1): 89–104. https://doi.org/10.1007/s13753-024-00498-7.

[77] Zhang, K., & Lee, J.E. (2024). Assessing the operational capability of disaster and emergency management resources: Using analytic hierarchy process. Sustainability, 16(10): 3933. https://doi.org/10.3390/su16103933.